EARLY ROMAN FEATURES, POSSIBLY DEFENSIVE, AND THE MODERN DEVELOPMENT OF THE PARKLAND LANDSCAPE AT INGRESS ABBEY, GREENHITHE

LES CAPON

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A programme of evaluation, subsequent excavation and recording at Ingress Abbey was conducted by AOC Archaeology Group in advance of the redevelopment of the site by Crest Nicholson Estates. The site is located on a large piece of roughly rectangular land, approximately 27ha on the south bank of the Thames estuary at Greenhithe, and bound to the south by the main London Road (A226, see **Fig. 1**). (National Grid Reference TQ 592 751). The site was most recently occupied by the buildings of the Empire Paper Mills and a naval college, *HMS Worcester*. Work began with an initial desk-based assessment (AOC 1998) followed by evaluation trenches (AOC 1999b).

This phase of work was followed by a limited excavation on the plateau next to London Road, followed by recording actions on elements of the eighteenth- and nineteenth-century parkland features such as follies and grottoes. All on-site archaeological work was recorded using the site code INGA 99, and the site archive is deposited at Dartford Museum. A total of 33 trenches were excavated to determine the archaeological potential of the site.

The solid geology of the site is the Upper Chalk formation of the Cretaceous period. This extends to within a short distance of the river estuary across much of the site, and is overlain by Alluvium and Head deposits, recent and Pleistocene in age. On the southern parts of the site, the chalk is capped with terrace gravels, in turn overlain by Tertiary deposits, while to the north and beyond the north-east of the site are alluvial deposits on

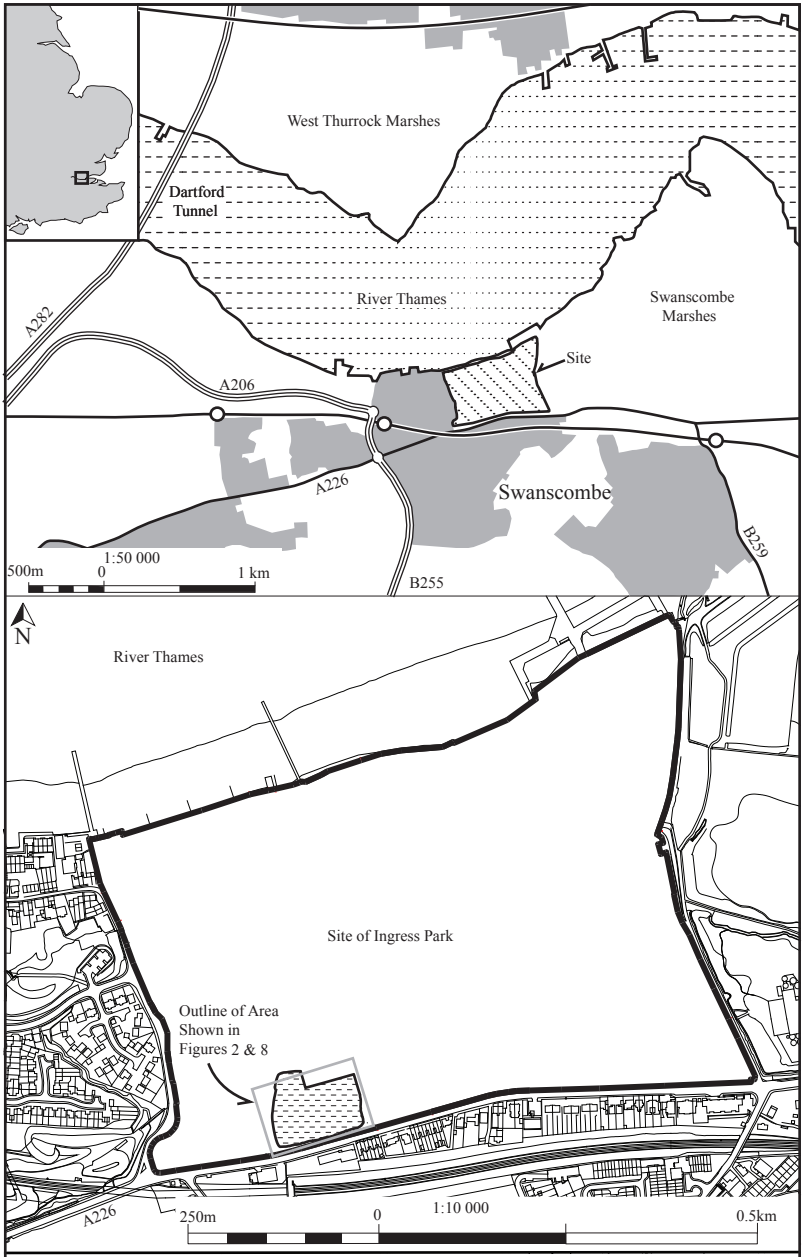

Fig. 1 Site Location. Main Excavation Area/Area of Palaeolithic Interest

the edge of the Thames which have historically supported both salt and fresh marshes.

Prior to the current development and the process of landscaping and quarrying conducted on site since the medieval period, the natural topography would have been of land sloping downwards to the river from the south, with flat areas adjacent to the river prone to flooding. The highest point of the site is now at the southeast corner, slightly in excess of 30m AOD.

The eastern part of the site was most heavily affected by quarrying, with steep cliffs dropping to a largely flat area, whereas the western side, while partially quarried, was comprised of a series of terraces and platforms for the post-medieval landscaped park.

SITE SEQUENCE

Palaeolithic

This area contains part of the Boyn Hill/Orsett Heath Pleistocene formation, preserved on the south side of the Lower Thames as an intermittent east-west band from Dartford Heath to Northfleet. The deposits consist of a sequence of predominantly fluviatile loam, sand and gravel units laid down by the ancient Thames in the post-Anglian interglacial period between *c*.430,000 and 350,000 years BP. This corresponds with late Oxygen Isotope Stage 12 to early OI Stage 10 of the global framework (Bridgland 1994). These are overlain in places by younger colluvial and solifluction deposits, filling northward-trending dry valleys and minor tributaries.

The Boyn Hill/Orsett Heath formation is rich in significant Palaeolithic archaeological remains, with quarrying activity at numerous locations having produced artefacts, faunal remains and evidence of climate and environment (Wymer 1968). There are several major sites in the immediate vicinity of Ingress Abbey, the most important of which are Barnfield Pit, the Globe Pit and Dierden's Yard.

Barnfield Pit produced an early human fossil skull (the Swanscombe Skull) making it one of only two sites in England with Lower or Middle Palaeolithic hominid skeletal evidence. The Globe Pit produced a series of ovates differing from the pointed types characteristic of the Middle Gravels at Barnfield Pit (Smith and Dewey 1913). The site at Dierden's Yard was *c*.500m to the east of Ingress Abbey, roughly halfway between the site and Barnfield Pit. Many Palaeolithic artefacts have been recovered from the site, including finely made ovates and twisted ovates, and a Clactonian industry. The site is best known for the presence of its 'Shell-bed', rich in molluscan and faunal remains (*ibid*).

Finally, a Palaeolithic handaxe was found at Ingress Abbey by the

collector Henry Stopes, whose collection is held at the National Museum of Wales, Cardiff (Roe 1968). Stopes' catalogue (entry no. 751) records a find 'in Embleton's garden at Ingress Abbey, Old Garden'. This specimen is small, pointed and with a thick, crudely worked butt, typical of handaxes from the Swanscombe Middle gravels. It is also quite rolled, suggesting recovery from a fluviatile or reworked deposit.

The area of Palaeolithic interest was restricted to an area of high ground *c*.150 x 120m, in the south-western part of the site adjacent to the A226, which had not been subject to previous quarrying. Three major groups of prehistoric deposit were recognised. The full sequence of deposits across the site was revealed in a trench excavated across the entire area of high ground. The overall character and distribution of the deposits are described below:

I - Tertiary and Cretaceous bedrock: most of the site was underlain by Cretaceous Chalk bedrock. It was highest in the centre of the site with its surface at *c*.26.80m OD and dipped shallowly to the west. It was unconformably overlain by Pleistocene colluvial/solifluction deposits that thickened to the west. The Chalk constituted a moderately consolidated white rock with occasional bands of flint nodules, often with distinct bi-zoning. It was truncated by landscaping and quarrying towards the Thames, but in the north of the site, the Chalk was covered by a variety of Pleistocene deposits (units II-III), as well as Thanet Sand in patches.

There was a thin layer of undisturbed Thanet Sand directly overlying the Chalk in places, overlain by a greater thickness of reworked Thanet Sand with a very indistinct boundary between the undisturbed and the reworked sediments. The Thanet Sand was moderately soft to moderately compacted fine slightly silty sand, light olive-brown (2.5Y5/4) to greyish-brown/brownish-grey (10YR5-6/2).

The Bullhead flint bed was present at the Thanet Sand/Chalk boundary, leading to abundant large derived Bullhead bed flint nodules in the overlying Pleistocene deposits. The Bullhead bed comprises a band of flint nodules ranging in size from 10-30cm maximum dimension, with a characteristic dark green cortex and an orange-stained band 2-3mm thick in the flint immediately under the cortex.

II - Pleistocene colluvial/solifluction deposits: the whole of the site was covered by a varying thickness of Pleistocene colluvial/solifluction deposits. These were relatively shallow (*c*.1.25m thick) in the eastern and central parts of the site, thickening to the west to 3-4m.

This group of deposits was very varied, and included contorted Chalk-rich solifluction deposits, reworked Thanet Sand, sands, silts

and gravels. Overall, the group of colluvial/solifluction deposits were heavily contorted, and had also been affected by the development of numerous solution features, causing local downward movement of pockets of sediment, as well as ice-wedges.

The colluvial/solifluction deposits were probably originally laid down as fluvial deposits during warm climatic conditions as part of the Boyn Hill/Orsett Heath formation. They had probably been reworked under subsequent cold, periglacial climatic conditions and, accompanying the drop in level of the Thames, had slumped downslope to the north. Their original fluvial structures had been retained in some places, but there had also been contortion and mixing of the various sediments with each other and with solifluction deposits formed of the underlying Chalk; this had been injected upwards whilst moderately fluid and under pressure of the weight of overlying sediment.

III - Pleistocene fluvial stream channels: two small channels *c*.5m wide were incised into the top of the colluvial/solifluction deposits. These channels were filled with loose, well-sorted and well-bedded fine-medium sandy gravels. These would have been deposited by small streams draining north across the top of the main body of colluvial/solifluction deposits. They most likely are of broadly similar date to the underlying sediments, and reflect short-lived channels that developed on their surface shortly after their stabilisation.

Six flint flakes were collected; five from the fluvial gravel (Group III) and one from the solifluction deposits (Group II). All were waste debitage with no diagnostic elements.

Later Prehistoric

Mesolithic implements including unretouched blades and flakes, cores, axes and scrapers have also been found 600m to the southeast of the Ingress site, not far from the Swanscombe skull site, and a Thames Pick was found 1km to the west. The most significant later prehistoric find recorded on the SMR within a 1km radius is a dene-hole, discovered by workmen of the Greenhithe Chalk Company in 1879. It is situated only 100m to the south of the entrance into the Ingress estate, and thought to be of Iron Age date, although it was clearly open at least partially into the Roman period. Three human skeletons were found side by side on the floor of the pit.

Excavations carried out in 1967, towards the southern end of Stone Castle Quarry, *c*.1 mile to the south-east of Stone, recorded evidence of a small Iron Age 'open settlement', dating to the first century BC or earlier.

The evidence included a feature representing either a very large hut or small enclosure, 54 ft in diameter, and part of a much larger enclosure, together with storage pits containing fragments of 'cob', domestic refuse and ash (Detsicas 1967).

No features of this date were present, but a small number of flints were collected. The flint assemblage consists of six flakes and two blade-like flakes. These had been hard-hammer struck and had not been specially prepared or carefully worked. The two blade-like flakes may not necessarily have been intentionally produced as they are not terribly well prepared, although one does have previous parallel blade scars on its dorsal face, indicating that it had come from a core that had also been used to make blades. The material is not particularly datable, but a Neolithic or Bronze Age date seems likely.

Roman

There are a number of Roman sites within a 1km radius of Ingress Abbey. The backfill of the dene-hole, discussed above, contained huge quantities of animal bone and Roman pottery, including Samian ware and therefore was used for household refuse. No records exist, however, of any evidence relating to a settlement in the immediate vicinity. The nearest reliable evidence of settlement is that recorded during excavations in 1967 at Stone Castle Quarry (*ibid*), 1 mile to the south-east of Stone, only 300m to the north of Watling Street.

The four other entries of Roman date on the SMR in the vicinity of Ingress Abbey all include evidence of burial activity (AOC 1998) and therefore probably settlement. These include a find from Ingress Abbey comprising a Roman urn, an earthenware bottle and other burial relics. The number of burials recorded within the immediate vicinity is testament to a relatively high level of activity during this period, and suggests that there is likely to be a settlement of some form within the vicinity.

Roman activity at the site was manifest as two long ditches and a gully parallel to one another, and may have been a boundary enclosing a possible early Roman military encampment (**Fig. 2**). A lack of substantial occupation debris or structural remains seemed to be the result of truncation through medieval and post-medieval activity. These features were located at the south-east corner of the excavation area, and to run north-west for over 100m before being truncated by later landscaping towards its north-west corner of the site.

Ditch 1. The westernmost ditch was 3.1m wide at the surface and at 1.1m deep was a significant defence. Some clearance of the site had

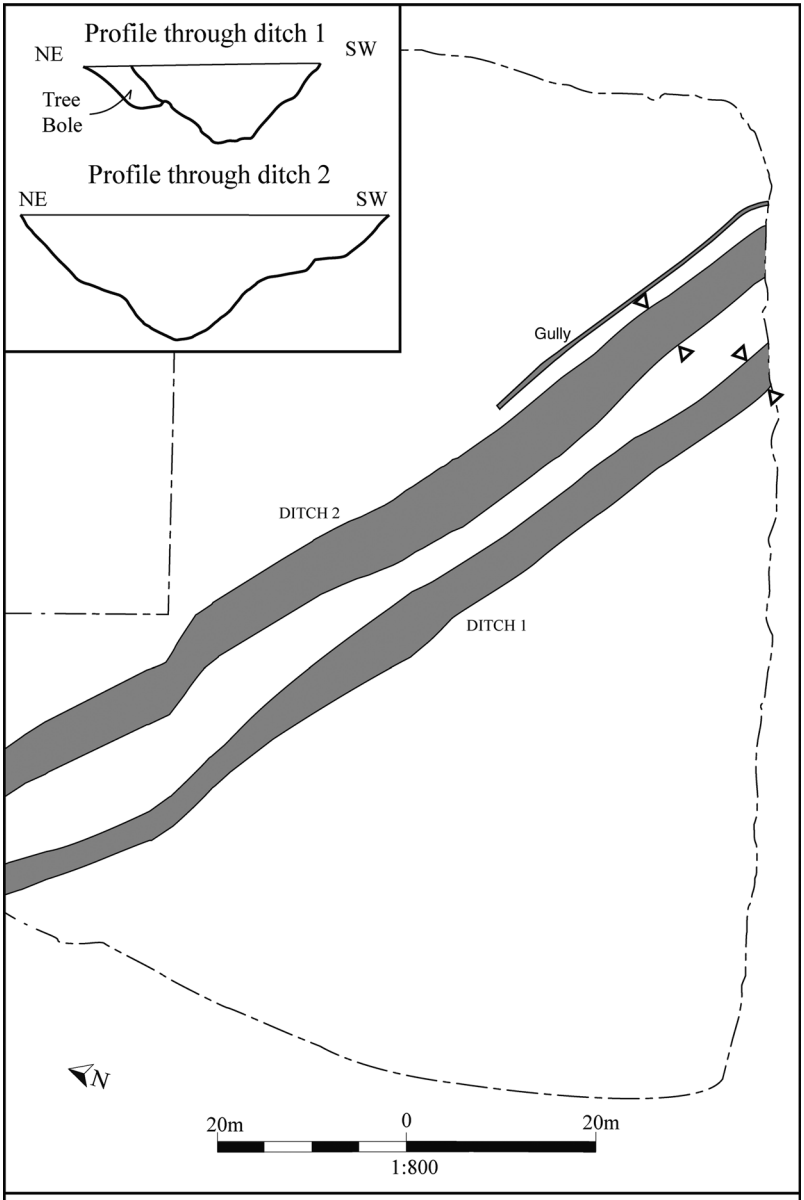

Fig. 2 Roman Features.

probably occurred prior to the cutting of the ditch, as suggested by a tree pit on one edge. The south-western side was notably steeper than that to the north-east, which featured a shelf that may have facilitated access into the ditch while cutting was in progress, or may simply be evidence of collapse of the side of the ditch through erosion. The base was flat and narrow along its entire visible length.

The primary fill of the ditch was the result of a combination of washing-in and slumping of natural sand and gravel from the western edge. The ditch may have been regularly emptied and cleaned; a narrow slot at the base of the cut suggested this, but there was no clear evidence. After abandonment, and as weathering of the exposed chalk edge set in, the secondary fill was deposited. Pottery collected from this deposit dated to the late first to second century AD, i.e. early Roman, and occasional fragments of Roman roof tile (*tegula* and *imbrex*) were recovered. Pressed into the top of this fill was a deposit of light greyish brown sandy silt, which appeared to be a later backfilling of the now shallow gully.

Ditch 2. The eastern ditch was larger than Ditch 1, being 4.80m wide and 1.65m deep. It had a double-stepped edge on the west, again presumably for access during cutting. The sides were canted at approximately 60°, but the steps on the west made the eastern edge appear much steeper. A thin layer of primary silting lay in the base of the cut, the insubstantial nature of this fill may be the only clue that the ditch was regularly cleaned.

The main fill of the ditch derived from gradual weathering of the ditch sides. This contained first-century Roman pottery and was sealed by a thick layer of silty-clay seemingly derived from a slumping episode. Pottery from the upper fills dated to the first to early second centuries AD. There were also the remains of a single large cooking jar in a vegetable-tempered fabric, locally produced, and dating to the early Roman period.

The steeper eastern edge would seem to indicate that if the ditches did have a defensive function rather than being property boundaries, the 'interior' of the defended area would be to the east.

One section excavated through the ditch found evidence for limited *in situ* burning. Two burnt deposits containing bone, burnt flint and burnt clay represented limited activities, possibly squatters utilising the shelter afforded by the predominantly infilled ditch.

Gully. A narrow linear feature immediately to the east of Ditch 2 ran parallel to the other two features, for a length of approximately 35m from the southern edge of excavation. It was either not present or

had been truncated further north. This feature was between 0.40m and 0.50m wide with vertical sides, a predominantly flat base and a depth of between 0.30m and 0.45m. Within excavated sections the base included evidence for possible posts. A single fill was present, almost identical to the natural gravelly sand, and suggesting almost immediate backfilling with the originally excavated material. It may have held a fence-like structure or support for a possible bank associated with the ditches.

The Roman pottery found (see below) identifies two phases of occupation, one in the first century AD, the second in the third century, but this does not preclude continual occupation. Of the 151 sherds of Roman pottery, 97 came from a single pot, a handmade vessel that was probably a locally manufactured storage jar. Much of the other Roman pottery is thought to have been local, and was identified as deriving from cooking vessels. Some of the other pottery was probably made at Upchurch, 15 miles away, whereas some was imported from South Gaul. One large jar and a bowl with a bifurcated rim merited illustration (see below).

There is also a small quantity of Roman brick and roof tile that indicates two possible date ranges for one or more buildings on site, one from the early years of the occupation, AD 50-80 and one from AD 120-200.

Two Roman coins were collected from the excavation, one from a ditch fill, the second in a later garden feature. That from the ditch was a well-preserved example of a *billion* coin produced from the House of Constantine, from AD 330-335. It was minted in *Lugdunum* (Lyons), and has the URBS ROMA type on the obverse, and the wolf and twins on the reverse (LRBC I, 190). The second Roman coin was extremely worn, with few identifying features. Enough of the design survived to indicate that it is an *as* of Trajan (AD 98-117).

Medieval Period

In 1363 Edward III founded Dartford Priory and endowed it with a farm called ‘Ingryce’ and a ferry at Greenhithe. It remained with the priory until the suppression of religious houses in 1538. References to the farm, chalk quarrying and ferrying and lime firing exist for this period (Fisher 1790). Also in 1363, chalk quarried from ‘Greenhuth’ was used for repairs to Hadleigh Castle in Essex, and in 1477 there is reference to chalk from Greenhithe being fired for lime to be used in the repairs to the London Wall between Aldgate, Cripplegate and Aldersgate (Greenhithe Conservation Area 1976, 3). By 1450 the nuns of Dartford Priory had given up farming at ‘Ingryce’ and later let the farm, a ferry, and chalk cliffs known as Downe Cliffs to a Robert Meriel of Swanscombe for a yearly rental of £10 (Gravesend Historical Society 1974).

Post-Medieval

The lease of Ingryce farm was renewed by the Prioress of Dartford for a term of 17 years in 1537, at which time it included all buildings, and cliffs 'together with the liberty to dig chalk there to the amount of one acre in length and breadth' (Hasted 1797). After the suppression, the estate came into the hands of the crown, and it was granted by the King to John Bere of Dartford, including the ferry which was still in operation. In 1562, Queen Elizabeth granted it jointly to John Bere and Sir Edward Darbyshire. A reference to a 'Mansion' in 1649 is the first indication of a building of any considerable size at Ingress (Fearnside 1835). This mansion is illustrated in a 1719 print by Badeslade (**Fig. 3**), dating to the ownership by Jonathan Smith between 1698 and 1737, who was Sheriff of Kent from 1721. A ten-bay house set in a formal arrangement of walled gardens, parterres and avenues is shown, and would not be inconsistent with a mid-seventeenth century building. Little of this arrangement is apparent in the surviving elements of the parkland.

By the eighteenth century, lime production at Ingress seems to have ceased. The 1719 'Badeslade' engraving shows chalky outcrops with evidence for working and a single, circular lime kiln (not illustrated), but the development of the parkland into landscaped gardens appears to have resulted in the stopping of the lime industry on site.

Several features potentially dated to this period: a heavily robbed foundation that may be a summer-house as shown on the print, and a series of planting trenches that probably held ornamental shrubs. These features contained finds of a mid eighteenth-century date, suggesting the garden layout was altered after the 1750s.

Terraces around the house and the river were formed in the early eighteenth century as part of the formal landscaping undertaken during the ownership of Jonathan Smith. They were formed by a process of cut and fill over the natural slope of the parkland.

1748-1833

In 1748, the house was conveyed to Viscount Duncannon, who became Earl of Bessborough in 1758. After the death of his wife and several children in 1760, the estate was sold to John Calcraft, a former army agent, later MP for Rochester. The grounds around the house were developed into a landscape park, less formal than the strict design shown on the Badeslade print (Fig. 3).

The broader landscape of the park contained changes initiated by Sir William Chambers, an architect and designer retained by the earl. By 1763, Lancelot (Capability) Brown was involved with the estate, and

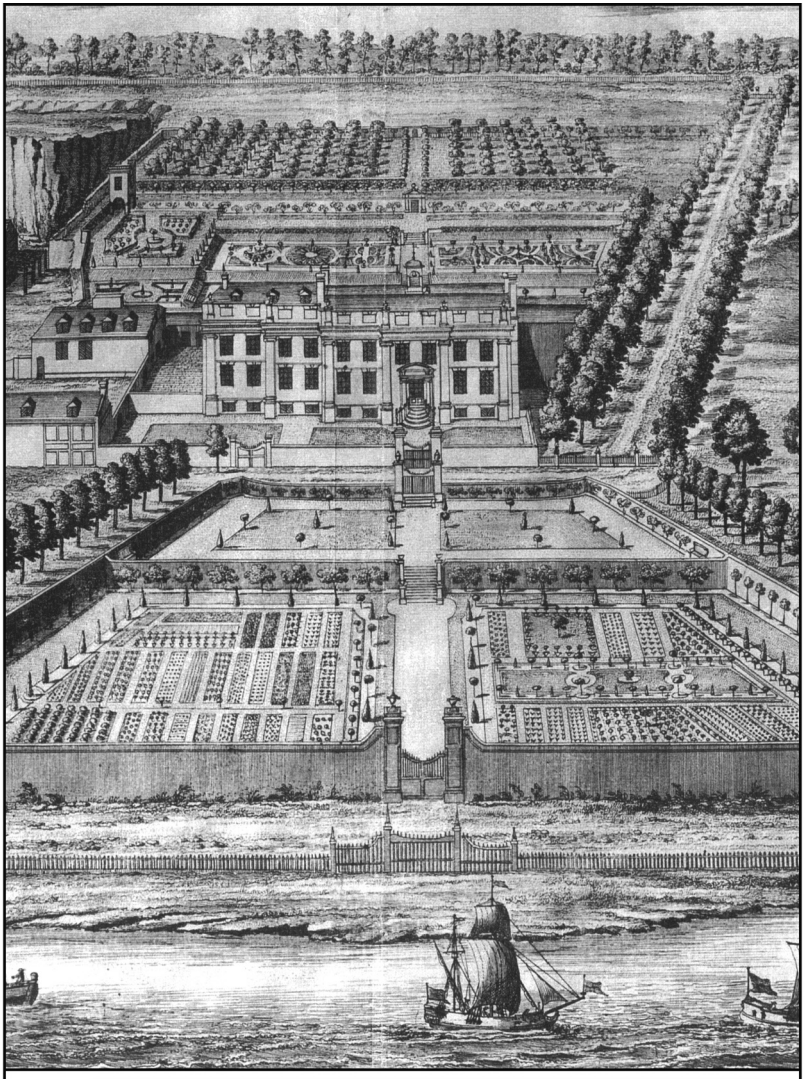

Fig. 3 Print of Ingress 'Mansion' by Badeslade, 1719.

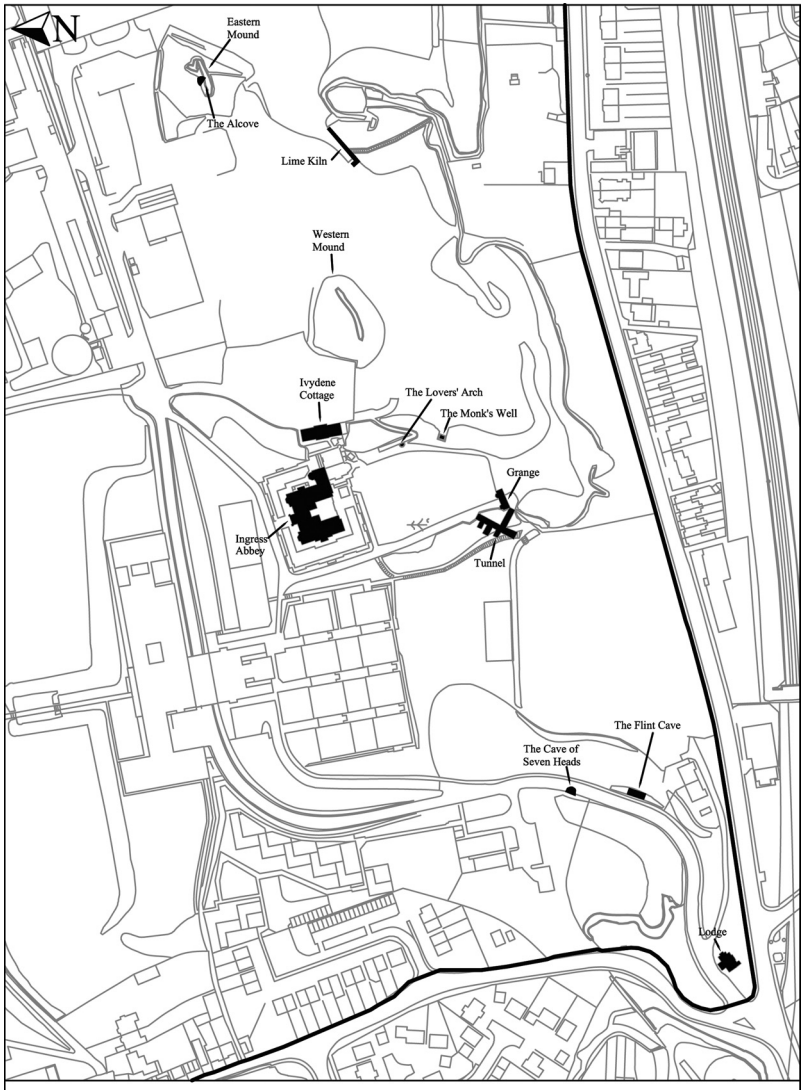

Fig. 4 Listed structures in the parkland.

undertook works to the value of £1,000 in two campaigns. These works involved the landscaping of the parkland approaches to the house through the grounds, and the development of vistas (Architectural History 1984). The impact on the landscape during the twelve years of Bessborough's ownership is not entirely clear from the documentary sources, but it is likely that some of the follies and other developments in the grounds were initiated by him, particularly the Cave of the Seven Heads, the South Tunnel, and the Flint Cave (**Fig. 4**).

The *Cave of the Seven Heads* lies within a landscaped dell that originated as a quarry. An access road to the lower parts of the site runs above it. The arched entrance contains sculpted grotesque heads and the whole structure is largely built of roughly-hewn blocks giving a rustic appearance. The imposing frontage suggests that it was a structure to be looked at rather than one that was used as a viewpoint.

The *Grotto* (**Fig. 5**) faces north-west across a landscaped dell that also features the Cave of the Seven Heads. An oval cave was cut into the solid chalk bedrock with pickaxes and the walls lined with regular rows of flint with niches at regular intervals, and two further chambers beyond. The front wall had collapsed, so the form of the entrance was lost, but it seemed to have had a single opening.

There is a tunnel [*South Tunnel*] cut into the quarried cliff face at the

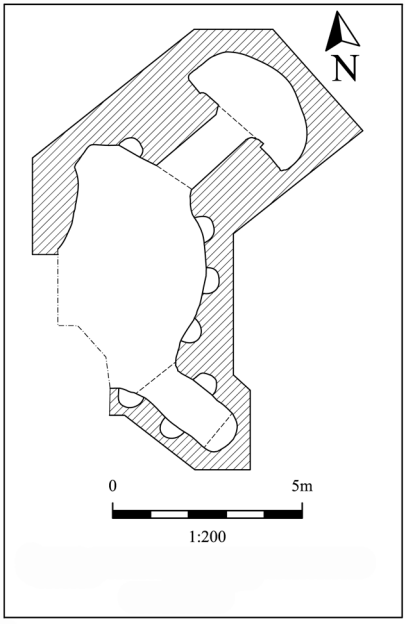

Fig. 5 Ground plan of the Grotto.

south of the site, and it is thought that this too was established during Lord Bessborough's ownership. The tunnels were not recorded during the site works. They have been reinforced to prevent collapse, and are now closed to the public.

Under the ownership of Calcraft, more of the follies in the garden were constructed, being the *Lover's Arch* and the *Monk's Well*, but these structures were not recorded during this work. More practical elements of the parkland were also established; siting the Kitchen Garden beside London Road, and building a Gatehouse. This area remained a working garden until the early twentieth century.

One of Chambers' designs known to have been executed was a *Doric tetrastyle temple*, a fluted version of the Temple of Arethusa at Kew, built in a hollow in the chalk cliffs to house Calcraft's collection of Roman altars brought from Italy. Other pieces of Roman sculpture and statues were placed strategically within the landscaped grounds (Dugdale 1819). The temple was moved to Cobham Hall in 1820.

Towards the eastern part of the site (the *Kitchen Garden*) were the dismantled remains of an eighteenth century heating system. The furnace was quite small and located just below ground level. It would have supplied hot air to a small greenhouse via brick flues which survived as fragmentary chalk foundations. A robber cut to the east of the excavated area most probably held a garden structure, and the backfill included part of a tin-glazed wall tile of an arcadian scene that is thought to have been part of a decorative panel from the old manor, and indicates one form of its internal decoration.

After Calcraft's death in 1772, the estate passed to his son, who sold it to John Disney Roebuck. The estate was neglected until bought by William Havelock in 1799, an entrepreneur whose schemes had little success. The old house was partially demolished after 1815, but some elements remained, which may have been incorporated in the new Ingress Abbey in 1833.

1833-1853 The New Abbey

The new Abbey was built during the ownership of James Harmer, Alderman of the city of London, who also oversaw the construction of the Grange, the East tunnel, and the laying out of the back Flower Garden. The house was a fine Victorian Country House, built in Tudoresque style, with ornate gables, octagonal buttresses with ogee capitals and a castellated central tower, presenting a very imposing structure (**Fig. 6**). The windows all had finely carved wooden mullions, transoms and arched lights, and the interiors of the house were particularly fine. The library was of particular note, with its stained glass windows, and its timber panelling depicting scenes from the life of Christ carved in deep relief. The carved panels, of Flemish workmanship, although presenting

Fig. 6 The new Ingress Abbey building. Photo: CABE/Dominic Church

an apparently unified scheme, were in fact of different dates, the earliest dating to *c*.1665. The house has now been refurbished.

To the east of the Abbey, a *Coach-House* was built, known as *Ivydene*. This has been refurbished including a new disabled access. No historic features were affected.

A small two storey building (*The Gatehouse*) with a semi-basement and a porch stands at the entrance to the site off London Road, at the highest point of the parkland. Although there is a building depicted on a map of 1799 (Ordnance Survey 1799) the form and materials were consistent with a mid-nineteenth century date, and was most likely constructed during the ownership of James Harmer after 1833. As a whole, the Lodge is quite ornate, though not as architecturally delicate as the Abbey building. The walls of the lodge are founded on ragstone blocks and are built of red brick laid in English Bond with flintwork panels. The quoins, hoodmoulds, string courses and copings are decorative, and all of Portland stone. The walls were originally plastered with moulded panels with a floral motif.

A *Well* was observed 18m east of the gatehouse. It had a circular brick shaft with a diameter of 1.20m and a total depth of 26m. Within the shaft a number of horizontal timber crossbeams were noted, together with putlogs where others had been removed or collapsed. The brickwork used in its construction was consistent with a mid-nineteenth century date.

The structure known as the lime-kiln was also constructed by this date,

once part of an arcaded front that stretched to the eastern mound, screening a model farm behind. It is probable that the flint cave atop the eastern mound dates from Harmer's time, stylistically like the earlier follies, and designed to blend with the rest of the landscape features. A new kitchen garden was laid out on the plateau by London Road, containing greenhouses and planting beds. Harmer also oversaw the construction of the Grange, the East Tunnel, and the laying out of the back Flower Garden.

The south-eastern part of the site (*The Model Farm Area*) had been heavily quarried, reducing the site to between 3.86m OD in the north to 0.61m in the south. Part of the chalk cliff that survived earlier quarrying was removed, forming the Eastern Mound. It is possible that the mound marks the tip of a promontory which had been deliberately retained for access to the Thames. A curved arcaded wall was built between the edge of the chalk cliff and the eastern mound, effectively dividing the parkland. The newly created Eastern Mound had a battered retaining wall built around its base and a flint alcove built into the southwest side.

A Farmhouse and Dairy were built by 1841 and other ancillary buildings later, but very few elements survived into the late twentieth century. One of the farm buildings was located through trenching, but survived only fragmentarily.

The surviving part of the curtain wall at the cliff edge became known as the 'Lime Kiln', but there was no evidence for lime burning here, only storage and the keeping of animals. Two arches of the arcaded front survived, and a third arch was present next to the eastern mound. Within the arched openings were remnants of iron feeding troughs and heavily corroded fittings that may have been the remnants of horse furniture. There were also smaller arches at the front of the structure: these are most likely kennels. It seems likely that there had been a walkway along the top of the arcade, to allow access to a small flint cave facing southwest across the ornamental parkland. Remnants of the screen were also found at the base of the Eastern Mound.

The arcaded screen to the Model Farm was demolished after the Second World War. The ground level has now been raised by up to 2.5m around the Eastern Mound for the new development, and the Mound no longer stands as such an imposing landscape feature.

The *Grange* and *East Tunnel* were not included in the recording action. The *Grange* was situated at the edge of the quarry to the south of the Abbey, and was built to give the impression of a historic ruin, and may be considered part of a romantic image of the landscape.

Above the walls on the south and west of the Eastern Mound is a small *Flint Grotto* similar in size to the *Lovers Arch* by the Abbey. It was in a ruinous condition following collapse of the mound after the arcade wall to the Model Farm was demolished. It is sited almost at the top of the Eastern Mound, but is buried within it, being invisible from the north and

east of the site. It would have provided a viewpoint across the ornamental landscape, the follies, and the Abbey. It is not possible to determine the former extent of the grotto from the surviving structure, but it stood 2.37m high from floor to ceiling, with the curved roof springing at 1.60m, and was 2.50m wide and 1.04m deep at the base.

To the rear of the Abbey was a second mound (the *Western Mound*). It was composed of a mixture of sandy clay with high gravel content and occasional patches of chalk. There was no evidence of its date, but its constituent deposits resembled most a spoil heap, and may have began as the stockpiling of spoil from quarrying or even terracing for the current Abbey building in the nineteenth century.

The (back) *South Flower Garden* was directly related to the new House of 1833, and it had a central axis in line with the rear door of the property with a central fountain, gravel paths and flowerbeds. There was no evidence for a pump for the fountain, and is assumed to have been fed from a tank in the attic through a brick culvert beneath the central path.

1853-1903

When Harmer died in 1853, he left the estate to his daughter and family, but the parkland began to disintegrate. The mooring of *HMS Worcester* in the Thames and the introduction of a railway line were precursors of the new uses for the site in the twentieth century.

To the east of the Abbey was a walled garden known as the *Rose Garden*. It is marked on Ordnance Survey maps of 1868-1933, and was known as the Umfreville Rose Garden. Samuel Umfreville was the husband of Emma Harmer, granddaughter of James. The 1868 Ordnance Survey Map depicts the Rose Garden in detail and indicates paths, flowerbeds and a set of steps providing access from the west. A photograph from *The Builder* of 1885 shows the garden to be sunken, having segmental flowerbeds typical of late nineteenth-century garden design.

The most substantial remains encountered during the excavation were buildings and other features relating to the nineteenth-century *kitchen gardens*. The first cartographic evidence for greenhouses on the site is from the First Edition Ordnance Survey of 1868. Three rectangular structures are indicated, two of which are crosshatched; the OS symbol for glass. By the time of the 1897 OS map (**Fig. 7**), a third cross-hatched structure is shown, so clearly this area of the gardens was being improved upon throughout the nineteenth century. No change is shown in 1909, but the 1933 OS map shows that all structures had been demolished

The greenhouse complex was built around a curving wall across the centre of the plateau (Building 5) (**Fig. 8**). A boiler house was built against the south side of the wall (Building 2), which was strongly founded on brick walls and had a sunken floor that housed a large furnace. At the

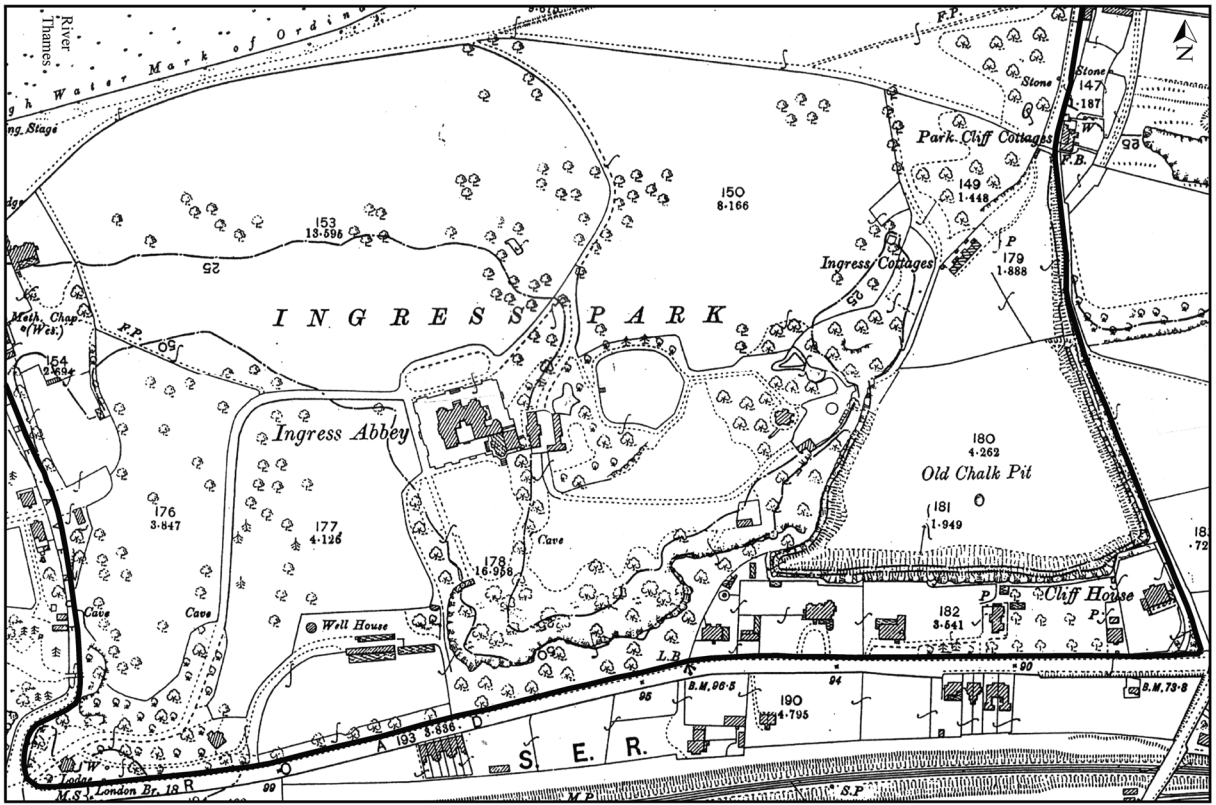

Fig. 7 Ingress Park as shown on Ordnance Survey Map of 1897.

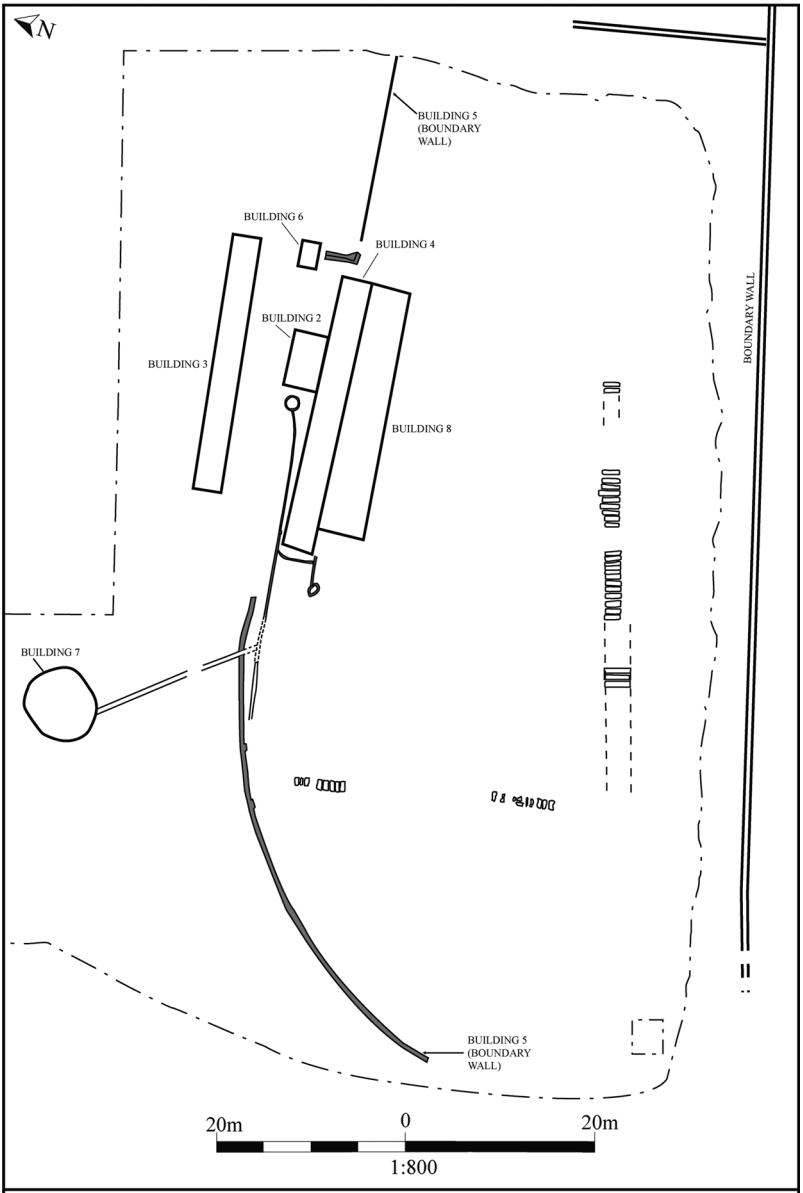

Fig. 8 Garden Buildings and Planting features, *c*.1830-1930.

time of recording, all salvageable parts had been removed, including the boiler, but the grate and firebox remained. There was space for a boiler of the 'saddle' type large enough to heat the entire greenhouse complex. It could provide an immense amount of hot water and could be regulated to prevent both overheating and explosion, which was a necessity in a closed system. The heated water in the pipes would have been used to heat the air of the greenhouses; radiating heat through enclosed flues rather than pumping steam into the air.

South of the curtain wall was a large hothouse heated by radiating pipes from the boiler house. A large quantity of flowerpot was present, suggesting that this greenhouse was a nursery with plants stored upon wooden staging (**Fig. 9**). The radiated heat from the hot water pipes was a very dry heat, so a reservoir of water was frequently required to prevent plants drying out. This existed as a 2.91m deep water-filled cistern that had been backfilled with demolition material including part of the gates to the park (**Fig. 10**).

A second greenhouse was present (Building 4), using the curtain wall as its main structural element. It was similar in size to the northern greenhouse (Building 3) and was also heated from the boiler house. The southern wall was composed of little more than two unbonded courses

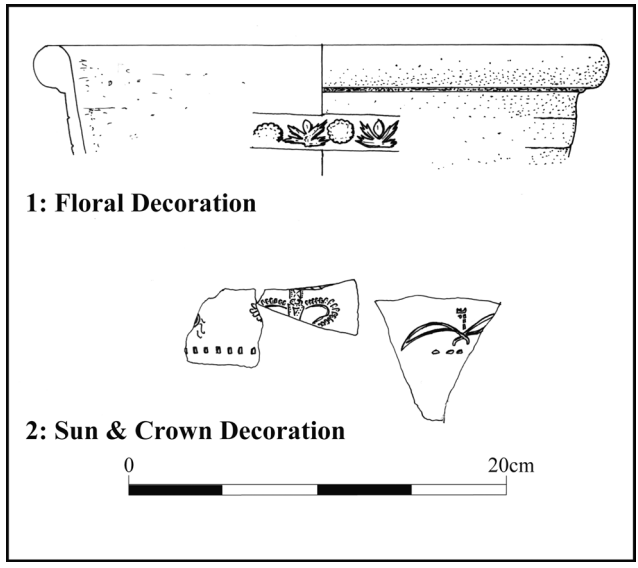

Fig. 9 Decorated flower pots.

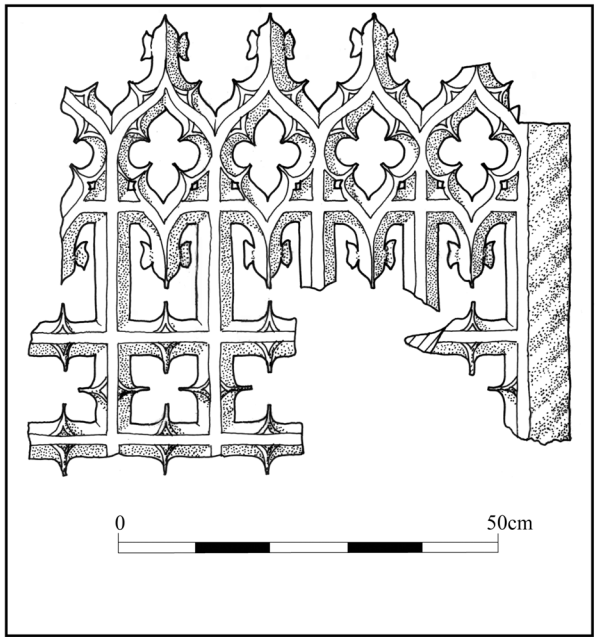

Fig. 10 Iron gate fragment, 1832.

of brick that possibly supported glass frames. There was a third structure adjacent to Building 3, built of low walls, and was most likely the remnant of a series of cold frames for non-hardy plants (Building 8).

One very small structure was recorded in the western part of the hothouse complex; a sunken brick structure with a central partition wall (Building 6). One common practice in nineteenth century gardening was the use of a manure-pit; the rotting of manure in one side of the structure resulting in heat being transferred to the other. The heat thus generated would be sufficient for the growth of salad vegetables in winter, or for tropical fruits such as pineapples.

Towards the edge of the plateau was a circular brick well (Building 7) over 30m deep and very securely mortared but suffering horizontal truncation. Leading out from the well house and towards the greenhouses was a stone-lined, slate-capped drain providing a network of channels beneath the buildings. Water from the well was presumably pumped to the greenhouses and boiler. Near the northern limit of excavation was a row of 75 parallel planting trenches, clearly for crops.

Twentieth Century

Parts of the parkland began to be sold off after 1903, and the Wall Papers Manufacturers' Association purchased 23 acres of the estate for their factory in 1905. During the First World War, the Abbey was used as an Army Hospital. Naval attachment increased, and by 1922, the house and grounds were purchased by the Thames Nautical Training College, and even the kitchen gardens were stripped away, converted to a cricket pitch. Evidence of the Navy's occupation of the site was provided by part of their dinner service (**Fig. 11**).

Until the 1990s, gradual dilapidation was resulting in the House and follies falling into ruin. The historical importance of the park, however, was recognised by the Ministry of Works, which listed the House and the major follies as Grade II. English Heritage continued the process in 1997, listing the remaining garden features, including the boundary wall onto London Road.

The Empire Paper Mills were established in the early twentieth century, and had links with other industries and the transport network. A complete set of original architect's plans was found within the building. This gave the opportunity to compare the original design with the resultant building. A report on the Paper Mills was produced by AOC Archaeology (AOC 1999a).

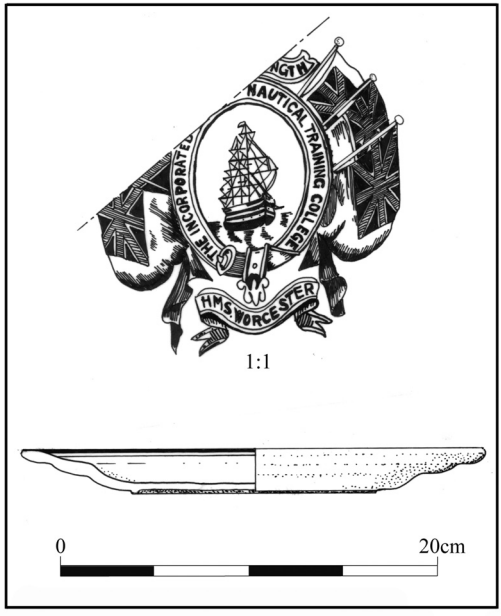

Fig. 11 Plate from *HMS Worcester*, 1920.

FINDS

Roman Pottery and Fabrics *by Barbara Precious*

The site produced a small assemblage of pottery, 157 sherds, 97 of which came from a single vessel. However, as the assemblage was derived from early Roman defences of probable Neronian/early Flavian date, the fabrics were given detailed attention. Full descriptions are held with the archive at Dartford Museum.

The majority of the sherds from the site are undiagnostic body fragments in fabrics that appear to be local in origin, for which there is little precise dating evidence. The presence of two separate vessels in South Gaulish Samian, form Dr18, provides reasonable external dating evidence for the fill of the defences in the early first century, *c*.50-80. Sherds from a handmade, chaff/straw-tempered vessel occurred with the Samian; this vessel could have been manufactured earlier as the fabric is indicative of Late Iron Age traditions.

Several contexts produced single sherds in grog- and sand-tempered fabrics. Pollard comments that an absence of wheel-thrown sandy wares and Roman fine wares is indicative of groups of pre-Conquest date (Pollard 1988, 32). Although the grog-tempered wares appear to be hand-made, the sand-tempered sherds are too small to be certain of the mode of manufacture, therefore a broad first century AD date is suggested.

Definitely wheel-thrown sherds from red and white-slipped vessels, probably flagons, provide evidence for occupation from the first to the early second century. Unfortunately there are no clearly diagnostic forms, but they could be as early as the mid to late first century AD.

Although the assemblage is too small to draw definite conclusions, there is a significant absence of black-burnished wares, which were manufactured in some quantity at the nearby kilns of Thameside Kent, including the Hoo Peninsula, from the early second century.

Evidence for late Roman occupation is provided by two sherds from a 'Castor' box in an unsourced colour-coated ware most common during the third century. One fill produced two sherds, a large, colour-coated jar (Fabric 18, **Fig. 12**.1) and a bowl with a bifurcated rim in a reduced version of the same fabric (Fig. 12.2). The latter has a rim similar to a jar illustrated in Pollard (1988, fig. 50, no 203), where it is dated from the third to the fourth century.

Fabric No. 18: a fine, wheel-made fabric with abundant microfossils frequently with hollow centres (R, 0.1mm) and moderate to sparse red iron ore (R, 0.1mm). A virtually identical fabric was found within assemblages from the City of London, FMIC-2559. The London form, a butt beaker, has been paralleled with vessels from Upchurch (2B2.5,

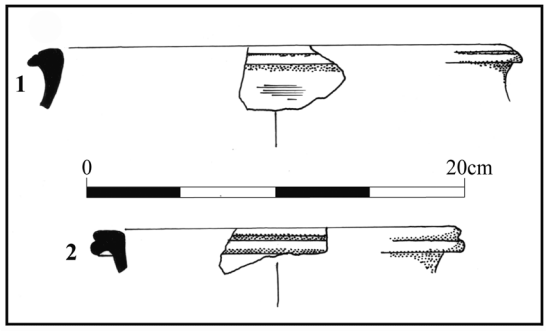

Fig. 12 Roman Pottery: 1) Large jar; 2) Bowl with bifurcated rim.

Monaghan 1987, 62) and the fabric was noted as being reminiscent of some Hoo Peninsula fabrics (Davies *et al*. 1994, 161).

Post-Roman Pottery *by Roy Stephenson*

Two hundred and eighteen sherds, weighing 9,169g have been identified and quantified; there are sherds from a maximum of 72 estimated vessels (ENV). There were two main assemblages, one of seventeenth- to eighteenth-century date, the second from the nineteenth century.

Among the material are 42 sherds of unglazed redware vessels, often with distinctive drainage holes, which are clearly flower or plant pots. Considering the presence of the glasshouses on the site, the bulk of this material was for propagation of plants in these glasshouses, but there are some stamped decorative sherds depicting floral arrangements and the sun and crown motifs, presumably for display purposes.

Ceramic Building Materials *by Naomi Crowley*

The excavation produced 40kg of ceramic building material and 27 brick samples, which were recorded by context, fabric and form. The sites proximity to London means that for the majority of the material the Museum of London fabric codes apply.

A number of contexts produced Roman brick and roof tile, suggesting the presence on the site of a Roman masonry building with a tiled roof. The majority of the tile is in Fabric 2815, which dates from the first to third centuries, and there are lesser quantities in Fabric 2459B, a division of Fabric 2815, and dates more precisely to AD 120/140-200.

The two date-ranges for the brick and tile suggest two phases of building, the earlier in the late first century, the later during the second. No other

evidence for the building these materials came from was found in the course of the excavations. A single piece of Kentish Ragstone collected was part of a quern rather than a part of the building.

Parts of a blue and white decorated post-medieval tin-glazed tile were collected. They are thought to derive from the earlier mansion that was pulled down in 1833. The tile is unusually large, 30.6cm square (12.5cm being usual) and was part of a larger panel of 4, 8 or 12 tiles showing an Arcadian landscape. Two similar tile pictures are on display in London, one at the Museum of London, the other at the Victoria and Albert Museum. The full size of this panel is unknown.

Metal *by Kim Stabler*

The most significant finds were collected as small finds, six of which were metal and are described within the text. The metal finds were as follows:

Find	Context	Material	Comments
1	1001	Cu alloy	Brass button, late nineteenth-century
2	1002	Cu alloy	Coin, well preserved, Roman
3	1305	Cu alloy	Coin, worn, Roman
6	1111	Fe	Cast Iron gate fragments identical to the ironwork on the London Road perimeter: nineteenth-century (Fig. 10)
7	1002	Cu alloy	Dress-hook, eighteenth-century
8	1002	Pb	Lead token with a floral design, eighteenth century? (**Fig. 13**)

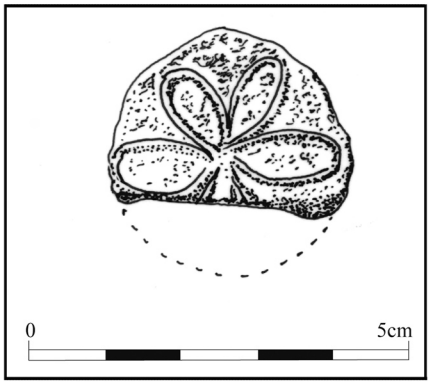

Fig. 13 Lead token, possibly eighteenth-century.

Clay Tobacco Pipes *by John Moore*

During the excavation 12 bowl fragments of clay tobacco pipe were recovered. The bowls fall into two periods: mid eighteenth century and late nineteenth century. Maker's marks of two manufacturers are identifiable. The two identifiable marks indicate that the mid eighteenth-century pipes were supplied from Gravesend with a switch in supply to Dartford in the later nineteenth century.

Two makers' marks of TI, either represents Thomas Johnson known in 1753 or his son known in 1764 at Gravesend. Both pipes are of Oswald G11 dated to 1730-60. Two definite marks of T Pascall of Dartford 1839-51 are present: these are both on the stem (PASCAL. DARTFORD), one attached to a moulded decorated bowl with fish scales around the upper bowl and ribs below.

CONCLUSIONS

The Pleistocene deposits at Ingress Abbey were the result of solifluction and fluvial processes happening under cold, probably periglacial, climatic conditions. The majority of the sediments – the mixed sands, silts and gravels overlying the soliflucted chalk-rich deposits – were probably originally laid down as fluvial deposits under warmer, interglacial conditions, but have been reworked by the colder conditions associated with the ensuing glaciation. Following this reworking, small, ephemeral stream channels developed on the surface of the soliflucted body, flowing north. These channels were probably also formed under cold climatic conditions, shortly after the stabilisation of the main body of solifluction deposits.

Only six probably human-struck waste flint flakes were found, one from the solifluction deposits (Group II) and five from the overlying fluvial deposits (Group III). Whilst this provides only limited information regarding the nature of hominid activity in the area, they represent evidence of hominid presence that is helpful in building up the picture of when hominids were present in the Lower Thames area, and how this relates to climatic change.

The local landscape would have been very suitable for hominid occupation with abundant availability of flint raw material and knapping percussors in the solifluction gravels, the local presence of fresh water draining northward, and probably an associated presence of large herbivores.

The Neolithic and Bronze Age evidence is limited to nine flint flakes found within later features. In the immediate locality, a single SMR entry records coarse Bronze Age pottery at Collyers pit, over 800m to

the south-east. This suggests that Neolithic and Bronze Age occupation in the area was sporadic, but there has been substantial medieval and post-medieval landscaping at Ingress Abbey, which could have removed potential prehistoric features.

It seems correct to ascribe both an early Roman date and a defensive function to the two parallel ditches and gully. Given the vantage point that the site offers, with extensive views over the Thames and into modern Essex, it would provide a perfect situation for a military encampment. This is likely to have been of a temporary nature, with tents, etc., instead of more permanent structures. The presence of locally-produced pottery among the finds assemblage indicates local trade and manufacture, but the imported pottery is typical of the wide-scale transportation of goods within the Empire.

Only three Roman features survived, probably due to site truncation. Building material within the ditch fills may indicate the presence of structures that have left no other trace. The pottery evidence provides an early date for Roman activity. The presence of South Gaulish Samian wares dated to AD 50-80 in the upper fills of Ditch 2 would seem to indicate at the latest a late first century date for occupation of the encampment, and other Late Iron Age/Early Roman pottery might suggest earlier occupation still. The supposed presence in the area of Emperor Claudius' crossing point over the Thames towards Colchester during the AD 43 invasion makes it tempting to suppose a possible connection between that and a military encampment close by. Equally, the views offered from this vantage point over Essex and the Thames Estuary would have been invaluable during the AD 60-61 Boudiccan revolt by the Iceni and Trinovantes. The proximity of Watling Street a short distance (only 2km) to the south gives further weight to the presence of military encampments in the area in the mid-late first century AD, so it is possible that the ditches represent one side of a defended enclosure, the majority of which was truncated by medieval quarrying and eighteenth century landscaping.

The Sites and Monuments Record notes that significant quantities of Roman pottery including Samian ware were found in the Dene hole, within 100m of the site. This suggests nearby direct occupation, perhaps either a villa or a settlement. The presence of Roman tile within the ditch fills on site also indicates direct settlement. Two bracketed dates are suggested for the presence of a roofed masonry structure in the immediate vicinity, AD 50-75/80 and AD 120/140-200. Either or both dates are plausible, for separate or for maintained structures.

Also in the SMR is a reference to an urn and other burial relics, found 50m north of the Gatehouse on London Road. This would locate it in an area of heavy landscaping, further indicating the degree of truncation the site had undergone.

There was no evidence of medieval activity in any of the excavations carried out in the parkland. The large chalk quarries that were the result of centuries of exploitation are thought to have been worked in the fourteenth century or earlier, since references to the farm, chalk quarrying and ferrying and lime firing exist for this period.

One of the mounds in the grounds, the 'Tudor' mound, had been assumed to have been established during the sixteenth century, but there was no evidence of its date, and it remains a landscape feature after the development. It may be as late as the nineteenth century. The first major property was established by 1649 and the grounds laid out in a formal manner.

The eighteenth century saw widespread development into a Landscape Park, with former quarries remodelled as dells with caves and grottoes under the owners Lord Bessborough and John Calcraft (Fig. 7). Planting of exotic and natural species provided views and vistas, and the parkland became an ornamented landscape for visitors to tour. This process continued in the nineteenth century when a new Ingress Abbey was built.

The follies that survive in the park are not randomly spaced, but are part of an eighteenth-century trail that leads visitors from grotto to folly to cave, with views across the parkland and the Thames. The loss of some of these follies from the landscape since they were established means that the trail is no longer complete, but this does not detract from their historical merit.

No artefactual evidence for a construction date for the follies and grottoes was forthcoming from the work. There may be dating evidence within, but without dismantling this evidence cannot be retrieved.

The documentary evidence suggests that Calcraft had the kitchen garden moved to the south of the park, adjacent to London Road, and this was shown archaeologically, with evidence of demolished garden structures. These are specifically a small hot-air furnace and fragmentary hothouse foundations. These elements of the site's history were removed and levelled during the nineteenth century, when work under James Harmer resulted in more alterations. It is not thought that there was much significant landscaping conducted after this.

The major change to the parkland in the nineteenth century was the rebuilding of Ingress Abbey in 1833. The Ivydene or Coach-House was also built as part of the same programme. No archaeological evidence for the previous house was forthcoming. It is thought that part of the old house forms the eastern wing of the current Ingress Abbey, since this was rendered, not clad in stone and flint.

A new Lodge was built at the London Road entrance. This still stands, although it had become derelict, the roof and floors having been stripped

during the years of abandonment. Whether it is on the site of an earlier gatehouse is unknown, but several large blocks of Ragstone in the basement may be evidence of an earlier structure.

In the kitchen garden, the use of steam to heat pipes and thus greenhouses was driven by demand for fresh and exotic food throughout the year. Although expanses of glass aided the growing season, they also lost heat, thus the need for efficient heating systems. Nineteenth-century flue heating made possible continuous, regular temperature control. It also had the advantage of retaining stored heat. This heat, however, dried the air, and excessive radiant heat damaged plants. It is possible that the cistern at the end of the Northern Greenhouse (Building 3) was a source for humidification. The heat would have been sufficient to grow pineapples, camellias, and even palms.

The Rose Garden is buried beneath made ground, and is largely intact. Details of planting in the Umfreville Rose Garden did not survive in detail and further research on the historic documents could illustrate their form more fully. This was an individual, almost private garden within the park, and thus a departure from the eighteenth-century style of landscaping to 'set pieces'.

Behind the house, the Back Flower Garden had only survived as very truncated features, including a fountain. This too was a private garden in close association with the Abbey. It has been observed in other ornamental gardens that fountains did not play regularly and were only used to impress visitors. This may have been the case at Ingress Abbey.

Harmer also made part of his land a working farm, the 'Model Farm.' Very little of this survived into the late twentieth century. The surviving arches of the screen to the Model Farm once formed an arcade. The rear of the 'Lime Kiln' is built directly onto the quarry face, and it seems likely that what is now the Eastern Mound was connected by a spur of bedrock to the cliff edge. The flint cave atop the mound is probably contemporary with the 'Lime Kiln', and provides an end point of a trail round the follies, since it faces across the parkland, with no view of the river.

The Eastern and Western Mounds are both incorporated into the housing development, partially obscured by made ground, but still surviving as prominent features.

The history of Ingress Abbey in the twentieth century started with the new Empire Paper Mills being built in the eastern part of the grounds and buildings of the Naval College in the north-west. The kitchen gardens were demolished and replaced with a cricket pitch, the Model Farm buildings fell into disrepair, and the follies and grottoes were largely ignored except by vandals.

The naval college, *HMS Wellington*, occupied the Abbey building, and evidence of their presence was a plate with the crest of *HMS Wellington*.

The care taken of the historic properties during the Navy's occupation was apparent in the poor condition of the buildings when Crest Nicholson bought Ingress Abbey. The site has now been developed with a range of over 700 new houses, and the follies and grottoes that adorned the landscape park are preserved within the development.

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